INTERPRETATION OF CROSSING DIAGRAMS

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Since the taxonomic value of experimentally performed interspecific crosses was so ably demonstrated by the work of Clausen, Keck, and Hiesey (1941), most biosystematic monographs have included one or more of the now classic crossing diagrams. Those first authors included data on the fertility of the F_1 and the F_2 generations of crosses between taxa. Similar data, coupled with other information, have been used by many authors in the determination of taxonomic affinities, the assumption being that the closer the relationship between taxa, the greater is the probability that they will produce a fertile hybrid. This assumption is generally valid and, when coupled with data from morphological studies, constitutes the basis for a valuable method of analysis. When, however, the conclusions based on crossing diagrams are not substantiated by other studies, gross misinterpretations may result.

In a recent study of six species within Oxalis section CORNICULATAE (Oxalidaceae), a series of interspecific crosses was made in an attempt to determine the taxonomic relations between these species. The results of these crosses are shown in Fig. 1. Oxalis corniculata L., O. dillenii Jacq., and O. stricta L. are fully interfertile and also receptive to pollen from O. priceae Small, O. suksdorfii Trelease, and O. grandis Small but the reciprocal crosses fail. Oxalis priceae, O. suksdorfii, and O. grandis are intersterile.

According to the general interpretation of crossing diagrams, since Oxalis corniculata, O. dillenii, and O. stricta are interfertile, they should be closely interrelated. Similarly, because O. priceae, O. suksdorfii, and O. grandis are not

interfertile, they should be distantly interrelated.

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